

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the Application of:

BROOKHART ET AL.

CASE NO.: CR9608 US DIV9

APPLICATION NO.:

GROUP ART UNIT:

FILED: HERewith

EXAMINER:

FOR: α -OLEFINS AND OLEFIN POLYMERS AND
PROCESSES THEREFOR

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

Before examination of, and for the purpose of calculating the filing fee for, this divisional application, please amend this divisional application as follows:

IN THE SPECIFICATION:

Please delete lines 3-13 on page 1.

Please add the following at line 3 on page 1:

--This application is a division of co-pending application Serial No. 08/899,002, filed July 10, 1997, which is a division of application Serial No. 08/590,650, filed January 24, 1996, now U.S. Patent No. 5,880,241, which is a continuation-in-part of application Serial No. 08/473,590, filed June 7, 1995, now abandoned, which is a continuation-in-part of application Serial No. 08/415,283, filed April 3, 1995, now abandoned, which is a continuation-in-part of application Serial No. 08/378,044, filed January 24, 1995, now abandoned, and which claims priority under 35 U.S.C. §119(e) from provisional application Serial Nos. 60/002,654, filed August 22, 1995, and 60/007,375, filed November 15, 1995.--

IN THE CLAIMS:

Please cancel claims 1-562 without prejudice to the Applicants.

Please add new claims 563-574 as follows:

--563.(NEW) A process for the production of a polyolefin having at least 50 branches per 1000 methylene groups and at least two branches of different lengths containing less than 6 carbon atoms each, comprising the step of polymerizing one or more monomers of the formula $H_2C=CH(CH_2)_eG$, wherein

G is hydrogen or $-CO_2R^1$,

e is 0 or an integer of 1 to 20,

R^1 is hydrogen, hydrocarbyl or substituted hydrocarbyl,

and

in at least 50 mole percent of said monomers G is hydrogen,
by contacting said one or more monomers with a transition metal containing coordination polymerization catalyst under polymerizing conditions such that in said polyolefin:

(i) the number of branches per 1000 methylene groups is 90% or less than the number of theoretical branches per 1000 methylene groups, or

(ii) the number of branches per 1000 methylene groups is 110% or more of theoretical branches per 1000 methylene groups;
or

(iii) when there should be no branches theoretically present, said polyolefin has 50 or more branches per 1000 methylene groups.--

--564.(NEW) The process as recited in claim 563, wherein said one or more monomers are contacted with said transition metal containing coordination polymerization catalyst under polymerizing conditions such that in said polyolefin:

(i) the number of branches per 1000 methylene groups is 80% or less than the number of theoretical branches per 1000 methylene groups, or

(ii) the number of branches per 1000 methylene groups is 120% or more of theoretical branches per 1000 methylene groups;
or

(iii) when there should be no branches theoretically present, said polyolefin has 75 or more branches per 1000 methylene groups.--

--565.(NEW) A process for the production of a polyolefin having at least 50 branches per 1000 methylene groups and at least two branches of different lengths containing less than 6 carbon atoms each, comprising the step of polymerizing one or more monomers of the formula $H_2C=CH(CH_2)_eG$, wherein

G is hydrogen or $-CO_2R^1$,

e is 0 or an integer of 1 to 20,

R^1 is hydrogen, hydrocarbyl or substituted hydrocarbyl,

and

in at least 50 mole percent of said monomers G is hydrogen,

by contacting said one or more monomers with a transition metal containing coordination polymerization catalyst under polymerizing conditions such that in said polyolefin:

(1) there are at least 50 branches of the formula

$-(CH_2)_fG$ per 1000 methylene groups, wherein $e \neq f$, and/or

(2) for any single monomer of the formula $H_2C=CH(CH_2)_eG$ there are

(a) less than 90% of the number of theoretical branches per 1000 methylene groups of the formula

$-(CH_2)_fG$ and $f=e$, or

(b) more than 110% of the theoretical branches per 1000 methylene groups of the formula $-(CH_2)_fG$ and $f=e$.--

--566.(NEW) The process as recited in claim 565 wherein said one or more monomers are contacted with a transition metal containing coordination polymerization catalyst under polymerizing conditions such that in said polyolefin:

- (1) there are at least 50 branches of the formula $-(CH_2)_fG$ per 1000 methylene groups, wherein $e \neq f$, and/or
- (2) for any single monomer of the formula $H_2C=CH(CH_2)_eG$ there are
- (a) less than 80% of the number of theoretical branches per 1000 methylene groups of the formula $-(CH_2)_fG$ and $f=e$, or
 - (b) more than 120% of the theoretical branches per 1000 methylene groups of the formula $-(CH_2)_fG$ and $f=e$.--

--567.(NEW) The process as recited in claim 563, wherein said monomer is ethylene only.--

--568.(NEW) The process as recited in claim 564, wherein said monomer is ethylene only.--

--569.(NEW) The process as recited in claim 565, wherein said monomer is ethylene only.--

--570.(NEW) The process as recited in claim 566, wherein said monomer is ethylene only.--

--571.(NEW) The process as recited in claim 563, wherein said monomer is propylene only.--

--572.(NEW) The process as recited in claim 564, wherein said monomer is propylene only.--

--573.(NEW) The process as recited in claim 565, wherein said monomer is propylene only.--

--574.(NEW) The process as recited in claim 566, wherein said monomer is propylene only.--

INVENTORSHIP:

In accordance with 37 C.F.R. §1.53(b)(1), please amend this application to delete Jerald Feldman, Daniel Joseph Tempel, Kristina Ann Kreutzer, Alison Margaret Anne Bennett, Edward Bryan Coughlin, Steven Dale Ittel and Anju Parthasarathy as co-inventor(s), because their invention is no longer being claimed in the application.

For information purposes, the inventors of the subject matter of one or more of claims 563-574 are Maurice S. Brookhart, III, Lynda Kaye Johnson, Christopher Moore Killian, Elizabeth Forrester McCord, Stephan James McLain and Samuel David Arthur.

REMARKS

In light of the above amendment, claims 563-574 are being prosecuted in this divisional application. These claims correspond identically to claims 571-582 canceled out of parent application Serial No. 09/899,002.

The Applicants submit that these claims are patentable for the reasons of record in parent application Serial No. 09/899,002, and respectfully request an action to that effect.

Should the Examiner wish to discuss any issues involved in this application, the Examiner is respectfully invited to contact the undersigned at the telephone exchange set forth below.

Respectfully submitted,



BART E. LERMAN
ATTORNEY FOR APPLICANTS
REGISTRATION NO. 31,897
TELEPHONE: 302-992-5285
FACSIMILE: 302-992-2953

Dated: 6/22/01